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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,090

03/29/2007

Roy Featherstone

082981-000000US

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03/05/2009

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EXAMINER

NGUYEN, HOANG M

ART UNIT

PAPER NUMBER

3748

MAIL DATE

DELIVERY MODE

03/05/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/589,090	<b>Applicant(s)</b> FEATHERSTONE ET AL.	
	<b>Examiner</b> Hoang M. Nguyen	<b>Art Unit</b> 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/29/07</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

Art Unit: 3748

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6516146 (Kosaka) in view of U.S. 4884557 (Takehana et al). Kosaka discloses a controller 21 for a SMA actuator 17 in response to many sensors 22X, 22Y for sensing the actual value then being compared with a reference value before calculating the driving signals. Kosaka does not disclose the current and resistance detector in combination with a regulator so that many currents can be generated. Takehana et al is relied upon to disclose a controller 12, 36, for a SMA actuator comprising a resistance detector 38, angle (position) detector 76, temperature detector 206, and a current supply circuit 34 for regulating the current by generating many currents to compare with the reference value (column 2, lines 15-55, column 12, lines 12-36). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide sensors and current regulator in Kosaka as taught by Takehana et al for the purpose of generating the accurate driving signals for driving the SMA actuator. Regarding claims 2-4, 8-10, 13-14, 16, 18-21, 23, 24, 29-31, 35-37, 40-41, 43-47, 50, it would have been obvious to set the specific conditions including the thermal temperature ranges, safety factors or margin as claimed for the purpose of improving the safety of the system.

Art Unit: 3748

Claims 1-51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-142105 (Minolta Camera) in view of JP 10311767 (Omron). Minolta Camera discloses a controller 21 for a SMA actuator 17X, 17Y in response to many sensors 22X, 22Y for sensing the actual value then being compared with a reference value before calculating the driving signals. Minolta Camera does not disclose the current and resistance detector in combination with a regulator so that many currents can be generated. Omron is relied upon to disclose a controller for a SMA actuator comprising a resistance detector 21, and a current generator 23 for regulating the current by generating many currents to compare with the reference value based on the changes of the resistance sensor. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide sensors and current regulator in Minolta Camera as taught by Omron for the purpose of generating the accurate driving signals for driving the SMA actuator. Regarding claims 2-4, 8-10, 13-14, 16, 18-21, 23, 24, 29-31, 35-37, 40-41, 43-47, 50, it would have been obvious to set the specific conditions including the thermal temperature ranges, safety factors or margin as claimed for the purpose of improving the safety of the system.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi, and Beauchamp et al disclose control circuit for SMA actuators comprising many detectors and reference values.

Art Unit: 3748

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Nguyen whose telephone number is (571) 272-4861. The examiner can normally be reached on Tuesday--Friday from 12:30 AM to 10:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hoang M Nguyen/  
Primary Examiner, Art Unit 3748

HOANG NGUYEN  
PRIMARY EXAMINER  
ART UNIT 3748

Hoang Minh Nguyen  
3/5/2009